

·0063 millim. (dermal); (2) smooth acuates, size up to 2·0 by ·025 millim.; (3) acerates—(a) small, tricurved, size about ·35 by ·0063 millim., (b) large, almost or quite straight, size up to 2·0 by ·01 millim. (a and b connected by intermediate forms); (4) very minute palmate equianchorates, ·0065 millim. long; scarce.

Localities. Christmas Harbour, Kerguelen, 70 fath.; off Marion Island, 50–75 fath.

Amphilectus annectens, n. sp.

Massive, lobate. Greyish yellow. Soft and spongy. Skeleton very loose and irregular. Spicules:—(1) smooth acuates, gradually sharp-pointed, size 1·0 by ·037 millim.; (2) bicapitate cylindricals, inequidended, ends microspined, size ·525 by ·01 millim. (dermal); (3) small palmate equianchorates, length ·02 millim.; (4) slender tricurveds with faintly spined ends, length up to ·2 millim. (few); (5) usually contort bihamates, length ·063 millim. (few).

Locality. Station 320, off Rio de la Plata, 600 fath.

[To be continued.]

XXXV.—*Contributions to the Study of the Littoral Fauna of the Anglo-Norman Islands (Jersey, Guernsey, Herm, and Sark).* By Dr. R. KÖHLER.

[Plate XI.]

[Continued from p. 307.]

HERM.

The island of Herm is situated about 3 miles from the east coast of Guernsey, from which it is separated by a narrow channel, the Little Russel, in which the sea presents exceedingly violent currents. The island of Herm is not much more than half a mile broad and nearly 2 miles in length. The coast, which is nearly perpendicular to the east and especially towards the south, falls with a gentle slope to the north and west. On the west coast the sea in retiring lays bare an immense sandy beach, which extends at spring-tides to a distance of more than half a mile. Thus the surface of the

island is doubled at low water, and the outlines of the island are very different according to the period of the tide. Towards the north the sea exposes a beach of much less extent and sprinkled with rocks.

Communication with the island of Herm is not easy, for the strong currents which prevail around the island do not allow the fishermen to sail there except in very favourable weather; the steam-boat service is not frequent and does not always coincide with the times of low tide. The few excursions which I made to Herm enabled me to ascertain that this station was exceptionally rich. I should like very much to have stayed there for some days, but it is impossible to find accommodation.

At low water the western part of the island presents an immense beach, formed of shell-sand, upon which rise some rocks indicated on the charts by the names of Vermerette, Hermetier, and Hornet. In this beach live a great number of species of animals belonging to very varied types, and of which an abundant harvest may be collected by digging in the sand with a spade. Towards the north-western region of the island, in the vicinity of the Hornet rocks, stretch vast meadows of *Zostera*, which are continued to the north of the island, where they give place to numerous rocks. We may therefore distinguish three distinct regions, in each of which the fauna presents a peculiar physiognomy.

I. SHELL-SANDS.—These sands are composed of fragments of shells, conveyed by the violent currents which prevail around Herm, and thrown up by the sea upon the coast, where they accumulate in considerable quantities. Similar débris are also met with at certain points on the east coast, but do not give shelter to animals; to make up for this the shells are much better preserved than on the west coast, for they are less rolled by the waves, and the conchologist might in a short time collect a great number of interesting forms. The shells which are most frequently found in the shell-sand belong to the species indicated below. I give the enumeration of these species, which really do not belong to the fauna of Herm, since they are only dead remains, to show the variety of specimens which may be collected in these sands.

Gasteropoda.

Patella vulgata, <i>Linn.</i>	Lacuna pallidula, <i>DC.</i>
Helicium pellucidum, <i>Linn.</i>	Littorina obtusata, <i>Linn.</i>
Tectura virginea, <i>Müll.</i>	— rudis, <i>Mat.</i>
Emarginella fissura, <i>Linn.</i>	Rissoa parva, <i>DC.</i>
Fissurella græca, <i>Linn.</i>	— cingillus, <i>Mont.</i>
Calyptrea chinensis, <i>Linn.</i>	— cancellata, <i>DC.</i>
Trochus magus, <i>Linn.</i>	Odostomia lactea, <i>Linn.</i>
— cinerarius, <i>Linn.</i>	Natica catenata, <i>DC.</i>
— umbilicatus, <i>Mont.</i>	Purpura lapillus, <i>Linn.</i>
— striatus, <i>Linn.</i>	Murex erinaceus, <i>Linn.</i>
— exasperatus, <i>Penn.</i>	Lachesis minima, <i>Mont.</i>
— zizyphinus, <i>Linn.</i>	Nassa incrassata, <i>Ström.</i>
— tumidus, <i>Mont.</i>	Cypræa europæa, <i>Mont.</i>
Phasianella pulla, <i>Linn.</i>	Dentalium tarentinum, <i>Lam.</i>
Lacuna divaricata, <i>Fab.</i>	

Lamellibranchiata.

Anomia ephippium, <i>Linn.</i>	Cardium fasciatum, <i>Mont.</i>
Pecten pusio, <i>Linn.</i>	— nodosum, <i>Turt.</i>
— varius, <i>Linn.</i>	— edule, <i>Linn.</i>
— opercularis, <i>Linn.</i>	— norvegicum, <i>Sp.</i>
Nucula nucleus, <i>Linn.</i>	Venus exoleta, <i>Linn.</i>
Pectunculus glycymeris, <i>Linn.</i>	— casina, <i>Linn.</i>
Arca lactea, <i>Linn.</i>	— verrucosa, <i>Linn.</i>
— tetragona, <i>Poli.</i>	— ovata, <i>Penn.</i>
Lucina borealis, <i>Linn.</i>	Lima hians, <i>Gmel.</i>

A careful examination would no doubt enable many other species to be recognized.

The group of animals living in these sands constitutes a very interesting fauna.

The ACTINÆ are represented by *Bunodes gemmacea*, *Sargartia bellis*, and *Peachia undata*, Gosse. This last species is known to be rather scarce. The figure of it given by Gosse is unsatisfactory, but the species from Herm is easily characterized by its five-lobed conchula and by its tentacles presenting circular bands. The largest specimens may attain a length of nearly 8 inches, with a thickness of from 1 to 1½ inch. The integuments present a fine rose-colour with spots of brick-red. The *Peachia* buries itself very deeply in the sand. To obtain it the hole indicating its presence must be sought on the beach and the spade pushed in quickly, so as not to give the animal time to retire lower down. The *Peachiæ* are associated with *Edwardsiæ*, of which the column presents a very light grey colour and delicate and transparent integuments; these *Edwardsiæ* must be referred to *E. Harrassii*, Quatref.

The ECHINODERMATA are chiefly represented by *Spatangi* and *Echinocardium flavescens*, Müll., which are buried in the sand to a depth of about 4 inches. Their position is easily known by means of the little cone of sand which covers it.

Echinocardium flavescens attains a remarkable size; the largest are not less than about 3 inches long by $2\frac{1}{2}$ – $2\frac{3}{4}$ inches wide. They differ from the Mediterranean specimens in the first place by their size and also by their coloration, which is dark grey, never rose-colour, so that the name of *Amphidctus roseus* would not be applicable to them. Upon these specimens I find small pedicellariæ with fleshy valves, of a dark red colour, which I have indicated upon the *Echinocardia* of the Mediterranean. At Herm the *Echinocardia* are rather less frequent than the *Spatangi*. *Synaptae* (*S. inhaerens*) are very abundant.

A NEMERTIAN of very large size lives in these shell-sands; its body, of a dark colour, nearly black, except at the anterior extremity, which is lighter, is flattened and about $\frac{1}{4}$ inch wide and of considerable length. An imperfect specimen which I extracted with much trouble was about 20 inches long; it broke up spontaneously and immediately into a great number of small fragments, just as the *Synaptae* do. This Nemertian is evidently very nearly allied to the species from the Pouliguen which Giard has described under the name of *Avenardia Priei*, if indeed it is not specifically identical therewith. All that the learned Professor says of that species applies to the animal from Herm; he has remarked that “when taken out of the water, instead of stretching itself softly like *Lineus*, the animal breaks up very rapidly into a multitude of smaller and smaller fragments. When the division ceases the fragments are scarcely more than 2 centimetres [about $\frac{1}{10}$ inch] long, and each of them has acquired a rounded form, in consequence of the contraction of the muscles, which gradually diminishes the fresh surface of the section, and finally causes it to disappear entirely,”—phenomena which I have observed in the Herm *Avenardia*.

Of the POLYCHÆTA, besides *Nephtys Hombergii*, *Aricia Cuvieri*, *Arenicola piscatorum*, and *Sthenelais Edwardsii*, some interesting species live in the sands of Herm. I may mention a large *Glycera* which I refer to *G. alba*, Rathke, and which is very frequent, as also numerous Clymenians:—*Olymene lumbricoides*, Aud. & Edw., *Leiocephalus coronatus*, Quatref., and *Arenia cruenta* and *A. fragilis*, Quatref. In somewhat muddy places, near the portion covered with *Zostera*, I have also taken some examples of *Ammotrypane astroides*, Rathke. Among the Tubicola, *Terebella conchilega*,

Pall., *Sabella pavonina*, Sav., and *S. arenilega*, Quatref., are very common. But the *Chaetopteri* (*C. Valencinii*, Quatref.) especially are abundant on all parts of the shore; they are found almost at every step, and even at points very close to the bank which are laid bare at nearly every tide.

As to the DECAPODA, they are represented by five species:—*Thia polita*, *Corystes cassivelaunus*, *Callianassa subterranea*, *Gebia deltura*, and *Axius stirhynchus*. These species, as is well known, are all fossorial.

MOLLUSCA are also very abundant, and belong to the following species:—*Lutraria oblonga*, Chemn.; *Solecurtus candidus*, Ren.; *Tellina squalida*, Pult.; *Solen ensis* and *S. vagina*, Linn.; *Pectunculus glycymeris*, Linn.; *Psammobia ferroensis*, Chemn.; *Mya truncata*, Linn.; *Cardium norvegicum*, Sp.; *Astarte triangularis*, Mont.; *Donax politus*, Poli; *Mactra glauca*, Born; *Natica Alderi*, Forbes; and *Skenea planorbis*, Forbes.

Amphioxus lanceolatus is exceedingly common in the shell-sands at the limit of the lowest tides. The specimens are always of rather large size, attaining a length of over $2\frac{1}{2}$ inches.

Lastly, I have found in these shell-sands several specimens of a fine *Balanoglossus*, of which I have already given a description in a note addressed to the Academy of Sciences.

The *Balanoglossus* of the island of Herm is very long and of very considerable size. As it is exceedingly soft and its body is always elongated, except towards the posterior extremity, which remains rolled up, I have never succeeded in obtaining a single entire specimen. The drawing which I give (Pl. XI. fig. 1) was made from three separate pieces of the same individual. As it is represented of the natural size, it will be seen that its length was about 14 inches. But I am convinced that some individuals may attain a much greater length, for I have collected pieces of the digestive tube, filled with sand, corresponding to the segment situated beyond the hepatic appendages, which were nearly 16 inches long. The diameter is about $\frac{1}{10}$ inch at the level of the collar.

The conical trunk, $\frac{6}{10}$ inch in length when extended, is of a bright yellow colour. The succeeding or branchio-genital portion of the body, which extends to the hepatic region, is of a deep orange-colour, which passes into dark green at the level of the hepatic diverticula. The green colour is continued beyond the point at which the diverticula disappear; then it is gradually lost, and the last portion of the body, of from 4 to 8 inches in length, is quite colourless.

The collar is $\frac{1}{10}$ inch in length. Its anterior margin

presents some small unequal lobes; its posterior margin is separated from the branchial region only by a slight transverse furrow. The region of the body which succeeds the collar is rather deeply excavated on the dorsal surface; the groove which is observed here, and which is very deep beyond the branchial region, becomes gradually attenuated behind, and disappears a little before the hepatic region, where the body is nearly cylindrical. The branchial region is about $\frac{6}{10}$ inch long. On its dorsal surface it presents an elongated triangle, of which the apex is directed backwards, bounded on each side by a slight groove, and presents in the middle a deeper longitudinal furrow, from which there start laterally some small and very faintly-marked wrinkles, more numerous than the lines of separation of the body-segments.

The hepatic caeca, about forty in number, are simple diverticula of the intestinal wall independent of each other. The posterior region is irregular, more or less lumpy according to the quantity of coarse sand which it contains.

This *Balanoglossus*, like all the species of the same genus, secretes a very abundant mucus from its cutaneous glands. It is well known that the mucus of the *Balanoglossi* possesses a peculiar odour and that this odour varies with the species. Thus a species found by Giard at the Glénans Islands, opposite Concarneau, *B. Robinii*, secretes a mucus which communicates to alcohol a strong odour of rum. In the species from Herm this mucus possesses a very marked and perfectly characteristic odour of iodoform. This odour is extremely persistent; I have recognized traces of it even in specimens of which the spirits had been changed several times.

As this *Balanoglossus* differs in its characters from all the species hitherto described, I have given it the name of *B. sarniensis*, with reference to the locality where I found it. In a note communicated to the Academy of Sciences M. Pouchet has indicated that this *Balanoglossus* was certainly identical with one of the two species found at the Glénans Islands. As these two species have never been described, I have retained for the Herm *Balanoglossus* the name that I gave it. The description and figure which I give will enable the identity of the *Balanoglossus* of the island of Herm to be established hereafter, when the species from Concarneau shall have been studied and described in detail.

Balanoglossus sarniensis appears to exist over the whole extent of the beach, but it does not seem to be very abundant there, for by digging in the sand for two hours (that is to say during the period of low water) I have hardly met with more than two or three specimens. There is nothing, however, to

indicate outwardly the presence of the *Balanoglossus* in the sand, and I have never remarked the pile of sand of which Giard speaks, and which indicates the position of the *Balano-glossi* at the Glénans.

II.—In the *Zosteræ* which extend to the north of the island live some interesting forms, which, however, occur also at Jersey and Guernsey. Some sponges (*Leucosolenia botryoides*, *Isodictya fucorum*) and Compound Ascidia (*Aplidium zostericola*, *Leptoclinum maculosum*, *L. asperum*, *L. gelatinosum*, and *L. sabulosum*, *Didemnum sargassicola*, *Botrylloides*, and *Botryllus*) are common there; small Crustacea (*Hippolyte varians*, *Mysis vulgaris* and *M. chamæleon*, *Gastrosaccus sanctus*, *Cuma Audouini*, and numerous Amphipoda) swarm there. Upon the *Zosteræ* numerous *Lucernariæ* (*L. octoradiata*, Lam.) are attached; I have only observed them at this single station.

III.—Under stones and under the rocks, towards the north and north-west of the island, a very rich fauna lies hidden.

Among the CŒLEENTERATA we may cite:—*Sagartia sphyrodeta* and *S. viduata*, Müll., *Aiptasia Couchii* and *Corynactis viridis*, Allm., represented by several varieties which clothe the lower surface of the rocks, in company with *Aleyonium digitatum*, Linn.

Of the SPONGES:—*Sycon ciliatum* and *S. tessellatum*, *Grantia compressa*, *Dictyocylindrus ramosus*, *Hymeniacion caruncula* and *H. mammeata*, *Halichondria incrustans* and *H. panicea*, and *Isodictya simulans*.

The ECHINODERMATA are represented by *Strongylocentrotus lividus* (pretty common), *Asterias glacialis* (which occurs under nearly every stone), *Ophiothrix fragilis*, *Ophiocoma neglecta*, and *Comatula rosea* (generally distributed species). *Cribrella oculata* and *Asterias rubens* are sometimes found on the sand. *Echinocyamus pusillus*, Flem., is rather common; it also occurs among the *Zostera*. *Cucumaria pentactes* is pretty frequent. In one of the bulbous swellings at the base of the *Laminariæ* I once found a specimen of a Holothurian, which has unfortunately been mislaid; from the description of it, which I have preserved, I think I am not mistaken in referring it to *Psolinus brevis*, Forbes.

The TURBELLARIA are rather abundant:—*Leptoplana tremellaris* and *Prosthecercæus vittatus* are frequent; *Polycelis lævigatus* and *Eurylepta cornuta* are sometimes associated with it, but are more rare. Of the Nemerteans I have met with

Lineus longissimus, *Nemertes gracilis*, *Tetrastemma candidum*, and some *Valencia*, as at Guernsey.

The POLYCHÆTA are represented by nearly all the Guernsey species. I may particularly mention a very large species of *Lumbriconereis*, over a quarter of an inch broad, of which, unfortunately, I did not obtain the anterior extremity, and which I approximate to the *L. gigantea* described by Quatrefages; and *Polynö areolata*, Gr., which I did not observe at Guernsey. As to the other species that I have brought from Herm, they are chiefly:—*Polynö cirrata*, *Sthenelais Edwardsii*, *Eunice Harrassii*, *Marphysa sanguinea*, *Staurocephalus rubrovittatus*, *Lysidice ninetta*, *Lumbriconereis contorta*, *Aonia foliacea*, *Cirratulus Lamarckii*, *Siphonostomum uncinatum*, *Nereis Dumerilii*, *Syllis amica*, *Eulalia clavigera*, *Phyllodoce laminosa*, *Eteone longa*, *Glycera capitata*, &c.

The most interesting CRUSTACEAN of this region is *Alpheus ruber*, Edw., a species which is known to be essentially Mediterranean. Bell describes it in his work from a specimen found in the stomach of a codfish at Falmouth. The *Alpheus* is not very abundant at Herm; I have, however, collected several specimens. Moreover it indicates its presence by the dry sound which it produces by the creaking of the movable joint of its raptorial feet. With *Alpheus ruber* I have found *Stenorhynchus phalangium*, *Inachus dorynchus*, *Pisa Gibbsii* and *P. tetraodon*, *Xantho florida*, *Pilumnus hirtellus*, *Pirimela denticulata*, *Portunus puber*, and *Athanas nitescens*.

Among the MOLLUSCA I must indicate two Cephalopods—*Ommastrephes sagittatus*, Lam., and *Eledone cirrhosa*, Lam.; and two other species which appear also to be peculiar to the island of Herm—*Galeomma Turtonis*, Turt., and *Lima hians*, Gmel.

Unfortunately I could devote only a few hours to my researches in the north of the island of Herm. In the first place I could not go to that island so often as I wished, and further I chiefly explored the shell-sands for the purpose of procuring *Balanoglossi*, of which I wished to possess some specimens which might enable me, after my return to France, to make an anatomical investigation of this interesting type. But the few indications, incomplete as they evidently are, that I am able to give here with regard to the fauna of the island of Herm suffice to show that this locality is one of truly exceptional richness, and that to zoologists fortunate enough to be able to explore it thoroughly it will furnish exceedingly interesting prizes.

The geological constitution of the island of Herm differs

little from that of Guernsey ; in the north the rocks are chiefly granite and present some veins of syenite ; the south of the island is principally formed of gneiss.

SARK.

The little island of Sark is situated $7\frac{1}{2}$ miles east of Guernsey and 11 miles from Jersey. A service of steam-boats runs pretty regularly between Guernsey and Sark during the season.

The island of Sark is exceedingly curious and very remarkable for truly imposing natural beauties. It is a rocky plateau, formed of more or less decomposed syenite, porphyries, and gneiss, with a mean altitude of about 130 feet, terminated on all sides by abrupt coasts, presenting perpendicular cliffs plunging down into the sea. The island consists of two unequal portions, the whole presenting the form of a figure of 8, as they are united by a very narrow isthmus called La Coupée.

The coasts being very high, the sea, in retiring, leaves no shores to be explored except some small beaches, such as those of the Bay of Icart, Terrible Bay, and the Grande Grève. According to the information that I have obtained these beaches present only a few naked rocks and do not shelter any animals, except perhaps a few Sea-Urchins. I devoted all the visits I paid to the island of Sark to the exploration of the Gouliot Caves (*Caverne Frégondée*), which Ansted and Latham, in their book on the Channel Islands, describe as a remarkably rich station as regards its fauna.

These caves are situated on the western coast of the island of Sark, opposite to a small uninhabited island, the island of Brechou or Des Marchands, which is separated from Sark only by a very narrow arm of the sea, called the Gouliot (*Goulet*) ; opposite Brechou the island of Sark presents a small peninsula, the Moye du Gouliot. The rocky mass which forms the Moye is pierced throughout its thickness by a wide excavation in the form of a tunnel, about 100 feet long and from 50 to 70 feet high ; it runs almost exactly in a north and south direction, and thus traverses the Moye du Gouliot perpendicularly. This very picturesque cavern, much larger than the others, is uncovered every tide and presents nothing of interest to the zoologist ; its rocks are covered only with *Balani* and dense tufts of *Campanularia flexuosa*. The other caves, situated at a lower level, are exposed only

at spring tides, and they open quite close to the entrance of the preceding one. We penetrate through a fissure between two rocks into a narrow passage, which gradually widens and buries itself in the rock parallel to the direction of the large cavern; this passage constitutes the second cave, upon which the two others open; these are more spacious and go off at right angles, to open upon the sea opposite the island of Brechou.

The last three caves have their walls completely covered with equally numerous and varied animals, which, being only laid dry at very long intervals, for a few hours every fortnight, have attached themselves to the rocks and multiply rapidly, presenting a vigour and a development which one does not find in any other locality. There are, in the first place, *Balani* (*B. balanoides*) which attain very considerable dimensions and upon which are packed together Sponges, Simple and Compound Ascidia, Bryozoa, and Hydraria, belonging to very various species; and the whole forms a thick living layer, in which the abundance of forms, combined with the variation of the brilliant colours, is well fitted to excite the admiration of the naturalists who may visit this incomparably rich station.

The SPONGES are exceedingly abundant in the caves. Bowerbank, who formerly visited them, records a great number of species; but it is certain that the too lavish demands of zoologists must have greatly impoverished this wonderful station. Among the species which I have been able to determine with certainty I will cite:—*Grantia compressa*, *Sycon tessellatum* and *S. ciliatum*, *Leuconia nivea*, Grant, *Leucosolenia contorta*, Bow., and *Leucogypsia Gossei*, Bow. These Calcareous Sponges are very abundant, and the specimens are always of large dimensions. Among the other Sponges I will indicate:—*Caminus osculosus*, Gr., *Geodia zelandica*, Johnst., *Tethya lynceurium*, Johnst., and *T. Collingsii*, Bow., *Microciona atrosanguinea*, Bow., *Hymeniacion mammeata*, Bow., *Halichondria panicea*, Johnst., *Isodictya simulans*, Bow., and *Raphyrus Griffithsii*, Bow., besides a great number of undetermined specimens.

The ACTINIÆ are represented by *Actinia equina*, the specimens of which are remarkable for the differences of coloration they present, varying from red to green, brown, yellowish, and pure or yellowish white; by *Actinoloba dianthus*, Ell., and by several species of *Sagartia*, such as *S. venusta*, Gosse, *S. viduata*, Müll., and *S. sphyrodeta*, Gosse. Lastly, *Corynactis viridis* is very abundant in the last two caves, and presents several varieties, the most common of which corre-

spond to those which Gosse designates by the names of *C. smaragdina*, *C. rhodoprasina*, *C. chrysochlorina*, and *C. coralina*, according to the predominant colour.

In the third cave I have also collected several specimens of *Atcyonium digitatum*. In this same cave are found *Tubulariæ* (*T. indivisa*, Hincks), which cover its roof with their dense tufts.

The Simple Ascidia are very generally diffused. *Cynthia rustica* attains a very large size; we find further *Ascidia producta*, *Ascidiella aspersa* and *A. scabra*, *Cynthia sulcatula*, and *Molgula arenosa*, Ald.

Upon the tunics of these different species are attached numerous Compound Ascidia, such as *Leptoclinum asperum* and *L. durum*, *Amaroucium albicans* and *A. Nordmanni*; Bryozoa, namely *Crisia cornuta* and *C. denticulata*, Lam., *Cellepora pumicosa*, Lam., *Lepralia foliacea*, Ell. & Sol., *Scrupocellaria scrupea*, Busk, *Mucronella Peachii*, Johnst., *Membranipora pilosa*, Linn., &c., together with numerous Hydroids (*Campanulariæ*, *Sertulariæ*, *Plumulariæ*).

Among the Ascidians live numerous species of Vermes and Crustacea. The Annelides are especially represented by *Nereis cultrifera* and *N. Dumerilii*, *Syllis amica* and *S. divaricata*, *Tripanosyllis Krohnii*, Grube, common *Serpula* and *Vermilicæ*, and a species of *Filigrana*.

The Crustacea almost all belong to the Isopoda and Amphipoda. Among the latter I will cite *Montagua monoculoides* and *M. marina*, *Atylus bispinosus*, *Anonyx Edwardsii*, and *Microdeutopus Websterii*, Sp. B.; *Nicea Lubbockiana*, *Aora gracilis*, *Podocerus capillatus*, *Exunguia stillipes*, Nordm.; and *Nenia tuberculosa*, Sp. B. Among the Isopoda:—*Leptochelia Edwardsii*, *Paratanais forcipatus*, *Apsuedes talpa*, *Jera Nordmanni*, *Janira maculosa*, and, finally, a new form, which I described last year in the 'Annales des Sciences Naturelles' under the name of *Jæropsis brevicornis*, Kœhl.

I will further indicate *Caprella hystrix*, Kröy., *Pycnogonum littorale*, and *Annothea longipes*.

I have already noticed the presence in the caves of *Æpophilus Bonnairei* and its larva.

As to the Mollusca, they are represented by a few not very interesting forms, such as *Anomia ephippium*, Linn., *Modiolaria marmorata*, Forbes, and *M. discors*, Linn., *Chiton discrepans*, Br., and *C. lævis*, Mont., *Mytilus edulis*, Linn., var. *angulata*, and *Doris tuberculata*, Cuv.

List of the Marine Invertebrata collected at the Anglo-Norman Islands in 1884-85.*

SPONGES.

- | | |
|---|---|
| Sycon ciliatum, <i>Häck.</i> J., G., H., S. | Hymeniacion caruncula, <i>Bow.</i> J., G., H. |
| — tessellatum, <i>Bow.</i> G., H., S. | — mammeata, <i>Bow.</i> J., G. |
| Grantia compressa, <i>Flem.</i> J., G., H., S. | — armatura, <i>Bow.</i> J., G., H. |
| — ensata, <i>Bow.</i> G. | — celata, <i>Bow.</i> J., G. |
| Leuconia nivea, <i>Gr.</i> J., S. | Halichondria panicea, <i>Johnst.</i> J., G., H., S. |
| Leucosolenia contorta, <i>Bow.</i> S. | — incrustans, <i>Johnst.</i> G., H. |
| — botrylloides, <i>Bow.</i> J., G., H. | Isodictya cinerea, <i>Bow.</i> J., G. |
| — lacunosa, <i>Bow.</i> G. | — densa, <i>Bow.</i> G.; <i>d.</i> |
| Leucogypsia Gossei, <i>Bow.</i> S. | — simulans, <i>Bow.</i> J., G., H., S. |
| Geodia zetlandica, <i>Johnst.</i> S. | — fucorum, <i>Bow.</i> J., G., H. |
| Caminus osculosus, <i>Grube.</i> J., S. | — infundibuliformis, <i>Bow.</i> G.; <i>d.</i> |
| Polymastia mammillaris, <i>Bow.</i> G.; <i>d.</i> | — parasitica, <i>Bow.</i> J., G. |
| Tethya lynceurium, <i>Johnst.</i> J., S. | Chalina cervicornis, <i>Bow.</i> G. |
| — Collingsii, <i>Bow.</i> S. | Dysidea fragilis (?), <i>Johnst.</i> J. |
| Dictyocylindrus ramosus, <i>Bow.</i> J., G. | Verongia rosea (?), <i>Barrois.</i> J. |
| Microciona armata, <i>Bow.</i> J., G.; <i>d.</i> | Raphyrus Griffithsii, <i>Bow.</i> S. |
| — atrosanguinea, <i>Bow.</i> S. | Oplitospongia papillata, <i>Bow.</i> G.
(And many still undetermined species.) |

CŒLEENTERATA.

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| Aiptasia Couchii, <i>Gosse.</i> G., H. | Sagartia troglodytes, <i>Gosse.</i> J., G., H. |
| Actinoloba dianthus, <i>Ell.</i> S. | Adamsia palliata, <i>Johnst.</i> J.; <i>d.</i> |
| Actinia equina, <i>Linn.</i> J., G., H., S. | Edwardsia callimorpha, <i>Gosse.</i> J., G. |
| Anemonia sulcata, <i>Penn.</i> J., G., H. | — Harrassii, <i>Quatref.</i> H. |
| Tealia crassicornis, <i>Thomps.</i> J., G., H. | Corynactis viridis, <i>Allm.</i> H., S. |
| Bunodes gemmacea, <i>Gosse.</i> J., G., H. | — —, var. smaragdina. |
| Sagartia parasitica, <i>Couch.</i> J., G., H. | — —, var. rhodoprasina. |
| — bellis, <i>Gosse.</i> J., G., H. | — —, var. chrysochlorina. |
| — venusta, <i>Gosse.</i> S. | — —, var. corallina. |
| — viduata, <i>Müll.</i> S. | Peachia undata, <i>Gosse.</i> H. |
| — sphyrodeta, <i>Gosse.</i> G., S. | Caryophyllia Smithii, <i>Stokes.</i> G., H. |
| — —, var. candida. J. | Alcyonium digitatum, <i>Linn.</i> H., S. |
| | Lucernaria octoradiata, <i>Lam.</i> J., H. |

* The letters J., G., H., S. denote that the species indicated have been found in the islands of Jersey, Guernsey, Herm, or Sark. I mark with the letter *d* the species which are obtained only by the dredge.

ECHINODERMATA.

- Strongylocentrotus lividus, *Br.* Luidia fragilissima, *Forbes.* G.; *d.*
 J. (*d.*), G., H. Ophiothrix fragilis, *Müll.* J., G.,
 Sphærechinus granularis, *Ag.* J.; H.
d. Ophiocoma neglecta, *Johnst.* J.,
 Spatangus purpureus, *Müll.* H. G., H.
 Echinocardium cordatum, *Penn.* Ophiura albida, *Forbes.* J.; *d.*
 G. — texturata, *Lam.* J.; *d.*
 — flavescens, *Müll.* H. Antedon rosaceus, *Link.* J., G.,
 Echinocyamus pusillus, *Flem.* H. H.
 Asteriscus verruculatus, *Retz.* J., Cucumaria pentactes, *Gunn.* G.,
 G., H. H.
 Asterias glacialis, *Müll.* J., G., H. — frondosa, *Müll.* G.
 — rubens, *Linn.* J. (*d.*), G., H. Psolius brevis, *Forbes.* H.
 Solaster papposus, *Retz.* J.; *d.* Synapta inhærens, *Düb. & K.* J.,
 Palmipes membranaceus, *Retz.* J.; G., H.
d.

VERMES.

- Leptoplana tremellaris, *Erst.* J., Aphrodite aculeata, *Linn.* J.; *d.*
 G., H. — hystrix, *Aud. & Edw.* J.; *d.*
 Prosthecereus vittatus, *Lang.* J., Polynoë cirrata, *Müll.* J., G., H.
 G., H. — squamata, *Sav.* J., G.
 Oligocladus sanguinolentus, *Quat-* — areolata, *Grube.* H.
ref. J. Lagisca propinqua, *Malmgr.* J.,
 Stylochoplana maculata, *Stimps.* G.
 J. Harmothoë Malmgreni, *Lank.* G.,
 Polycelis lævigatus, *Quatref.* J., H.
 H. Sthenelais Edwardsii, *Quatref.* J.,
 Proceros argus, *Quatref.* G. G., H.
 Eurylepta cornuta, *Müll.* G., H. Eunice Harrassii, *Aud. & Edw.* J.,
 Lineus longissimus, *Sim.* J., G., G., H.
 H. — Belli, *Aud. & Edw.* J.
 — gesserensis, *Johnst.* J. Marphysa sanguinea, *Aud. & Edw.*
 Valencia splendida, *Quatref.* J., J., G., H.
 G., H. — longirostris, *Quatref.* J., G.,
 H. — ornata, *Quatref.* J., G., H. Staurocephalus rubrovittatus, *Gr.*
 Amphiporus lactifloreus, *M. Sert.* G., H.
 J. Lysidice ninetta, *Aud. & Edw.* J.,
 Nemertes gracilis, *Quatref.* J., G. G., H.
 Polia filum, *Quatref.* J. Lumbriconereis contorta, *Quatref.*
 — sanguirubra, *Quatref.* J. J., G., H.
 Cerebratulus bilineatus, *Ren.* J. — humilis, *Quatref.* J., G.
 Tetrastemma candidum, *Müll.* J., — gigantea (?), *Quatref.* H.
 G., H. Nephthys Hombergii, *Aud. & Edw.*
 Avenardia Priei, *Giard.* H. J., G., H.
 — scolopendroides, *D. Chi.* J.
 — longisetosa, *Erst.* J.
 Phascolosoma elongatum, *Kef.* J., Aonia foliacea, *Aud. & Edw.* J.,
 G., H. H.
 — margaritaceum, *Sars.* J., G., Cirratulus Lamarekii, *Aud. & Edw.*
 H. J., G., H.
 Chloræma Dujardinii, *Quatref.* G.
 Siphonostomum uncinatum, *Aud.*
 & *Edw.* J., G., H.

- Nereis cultrifera*, Grube. J., G., H.
 — Dumerilii, Aud. & Edw. J., G., H.
 — Marionii, Aud. & Edw. J.
 — falsa, Quatref. G.
 — irrorata, Malingr. J.
Nereilepas lobulatus, Quatref. J.
Leptonereis Vaillantii, St.-Jos. J.
Syllis amica, Quatref. J., G., H., S.
 — divaricata, Kef. J., G., S.
Grubea fusifera, Quatref. J.
Claparedia filigera, Quatref. J.
Trypanosyllis Krohni, Gr. S.
Eulalia clavigera, Aud. & Edw. J., G., H.
Phyllococe laminosa, Sav. J., G., H.
Eteone longa, Sav. J., G., H.
Glycera capitata, Erst. G., H.
 — lapidum, Quatref. J.
 — alba, Rathke. H.
Chætopterus Valencinii, Quatref. G., H.
 — Quatrefagesii, Jourd. J., G.
Clymene lumbricoides, Aud. & Edw. J., G., H.
Leiocephalus coronatus, Quatref. H.
Arenia cruenta, Quatref. H.
 — fragilis, Quatref. H.
Petaloproctus terricola, Quatref. J., G.
Arenicola piscatorum, Cuv. J., G., H.
 — ecaudata, Johnst. J., G., H.
Ophelia bicornis, Sav. J.
Ammotrypane œstroïdes, Rathke. H.
Aricia Cuvieri, Aud. & Edw. J., G., H.
Leucodore ciliata, Johnst. J.
Terebella conchilega, Pall. J., G., H.
 — prudens, Cuv. J.
- Terebella nebulosa*, Mont. J., G.
 — Montagui, Quatref. G.
Sabella pavonina, Sav. J., G., H.
 — verticillata, Quatref. J., G.
 — arenilega, Quatref. J., G., H.
Protula protensa, Grube. J., G.
Filigrana, sp. J.
Salmacina Dysteri, Quatref. J.; d.
Vermilia conigera, Quatref. J., G.
 — tricuspis, Quatref. J., G.
Serpula fascicularis, Lam. J., G.
Spirorbis communis, Flem. J., G., H.
 —————
Argiope capsula.
 —————
Crisia denticulata, Lam. J., G., S.
 — cornuta, Linn. J., G., S.
Bugula avicularia, Linn. J., G.
Bicellaria ciliata, Linn. J.
Scrupocellaria scrupea, Busk. J., G., S.
 — reptans, Linn. J.
Membranipora pilosa, Linn. J., G., S.
 — membranacea, Linn. J., G., H., S.
 — lineata, Linn. J.
Cellepora pumicosa, Linn. J., S.
Lepralia foliacea, Ell. & Sol. J., G., S.
Mucronella Peachii, Johnst. J., G., H., S.
 — coccinea, Hincks. J.
 — variolosa, Johnst. J.
Flustrella hispida, Fabr. J.
Bowerbankia imbricata, Ad. J., G., H.
Smittia reticulata, J. Mac. J.
Cribrilina punctata, Hass. J.
Pedicellina cernua, Pall. J., G.
Loxosoma phascolosomatum, Vogt. J., G., H.

ASCIDIA.

- Ciona intestinalis*, Linn. J., G.
 — —, var. canina. J., G.
 — —, var. fascicularis. J., G.
Ascidia mentula, Müll. J., G., H.
 — producta, Hanc. J., G.
Ascidiaella aspersa, Müll. J., G., H.
 — scabra, Müll. J.
- Polycarpa glomerata*, Ald. J., G.
Cynthia rustica, Müll. J., G., H., S.
 — granulata, Ald. J., S.
 — sulcatula, Ald. J., G., H.
Molgula arenosa, Ald. S.
 — socialis, Ald. G.
Anurella roscovita, Lac. J.

- Hippolyte varians, *Leach.* J., G.
 — Cranchii, *Leach.* J.; d.
 — viridis, *Edw.* J., G.
 Lismata seticaudata, *Risso.* J.
 Alpheus ruber, *Edw.* H.
 Mysis chamæleon, *Thomps.* J., G.
 — vulgaris, *Thomps.* J., G.
 — Griffithsiæ, *Bell.* J.
 Themisto brevispinosus, *Goods.* J., G.
 Cynthia Flemingii, *Goods.* J.
 Thysanopoda Couchii, *Bell.* J.
 Cuma Edwardsii, *Bell.* J.
 Sphinoë serrata, *Norm.* J.
 — trispinosa, *Goods.* J.
 Gastrosaccus sanctus, *Ben.* J., G., H.
 Squilla Desmarestii, *Risso.* J.
 Talitrus locusta, *Latr.* J., G., H.
 Orchestia mediterranea, *Costa.* J., G.
 — littorea, *Leach.* J., G.
 Nicaea Lubbockiana, *Sp. B.* J., S.
 Montagua monoculoides, *Sp. B.* J., G., S.
 — marina, *Sp. B.* J., G., S.
 Ampelisca Gaimardii, *Kröy.* J.
 Anonyx Edwardsii, *Kröy.* J., G., H.
 — longipes, *Sp. B.* J.
 Dexamine spinosa, *Leach.* J., G.
 — vedlemensis, *Sp. B.* J.
 Acanthonotus Oweni, *Sp. B.* J.
 Atylus Swammerdamii, *Sp. B.* J., G.
 — bispinosus, *Sp. B.* J., G., H.
 Pherusa fucicola, *Leach.* J., G., H.
 — bicuspis, *Edw.* J.
 Iphimedia obesa, *Rathke.* J.
 Leucothoë articulosa, *Leach.* J., G.
 Aora gracilis, *Sp. B.* J., S.
 Gammarella longicornis, *Köhl.* J.
 Melita palmata, *Leach.* J., G.
 Mœra grossimana, *Leach.* J., G., H.
 Eythreus erythrophthalmus, *Sp. B.* J.
 Amathilla Sabini, *Leach.* J.
 Gammarus marinus, *Leach.* J., G., H.
 — locusta, *Fabr.* J., G., H.
 — campylops, *Leach.* J.
 — brevicaudatus, *Edw.* J.
 Amphithoë littorina, *Sp. B.* J., G.
 — gammaroides, *Sp. B.* J., G.
 Podocerus falcatus, *Sp. B.* J., G., H., S.
 Podocerus capillatus, *Rathke.* J., S.
 Microdeutopus gryllotalpa, *Costa.* J., G., S.
 — Websterii, *Sp. B.* J., S.
 Corophium longicorne, *Lath.* J., G.
 Cerapus punctatus, *Edw.* J.
 Siphonocetes typicus, *Kröy.* J.
 Exunguia stillipes, *Nordm.* S.
 Nœnia tuberculosa, *Sp. B.* S.
 Chelura terebrans, *Philip.* J.
 Spheroma serratum, *Fabr.* J., G., H.
 — curtum, *Leach.* J.
 — Prideauxianum, *Leach.* J., G., H.
 Dynamene viridis, *Leach.* J., G.
 — Montagnii, *Leach.* J., G.
 Cymodoce truncata, *Leach.* J. G.
 Næsa bidentata, *Leach.* J. G.
 Idotea tricuspидata, *Desm.* J., G., H.
 — pelagica, *Leach.* J.
 — linearis, *L.* J., G., H.
 — acuminata, *Leach.* J., G.
 — appendiculata, *Risso.* J.
 — emarginata, *Fabr.* J.
 Limnoria lignorum, *Rathke.* J.
 Janira maculosa, *Leach.* J., G., H.
 Cirolana Cranchii, *Leach.* J.; d.
 Conilera cylindracea, *Mont.*, var. punctata. J.; d.
 Ligia oceanica, *Fabr.* J.
 Jæra Nordmanni, *Rathke.* J., G., S.
 Jæropsis brevicornis, *Köhl.* S.
 Bopyrus squillarum, *Latr.* J., G., H.
 Anilocra mediterranea, *Leach.* J., G.
 Paranthura Costana, *Sp. B.* J., G., H.
 Apeudes talpa, *Leach.* J., S.
 Tanais vittatus, *Liljb.* J., G., S.
 Leptocheilia Edwardsii, *Kr.* J., G., S.
 Paratanais forcipatus, *Liljb.* J., G.
 Anceus maxillaris, *Mont.* J., G.
 Praniza cærulea, *Desm.* J., G.
 Protella phasma, *Sp. B.* J.
 Caprella hystrix, *Kr.* J., G., S.
 — linearis, *Edw.* J., G.
 — acanthifera, *Leach.* J.
 Nebalia Geoffroyi, *Edw.* J., G., H.

Other ARTHROPODA.

<i>Æpus Robinii</i> , <i>Lab.</i> J.	Larvæ of Diptera. G.
<i>Oelthebius Lejoli</i> , <i>Leach.</i> J.	<i>Ammothea longipes</i> , <i>Hodg.</i> J., G., S.
<i>Philhydrus melanocephalus</i> , <i>Oliv.</i> G.	<i>Pycnogonum littorale</i> , <i>Ström.</i> J., G.
<i>Æpophilus Bonnairei</i> , <i>Sign.</i> J., S.	<i>Halacarus</i> , sp. ?
<i>Corixa</i> , sp. G.	

MOLLUSCA*.

<i>Doris flammea</i> , <i>Ald. & Hancock.</i> J., G.	<i>Triopa claviger</i> , <i>Müll.</i> J., G.
— <i>tuberculata</i> , <i>Ald. & Hancock.</i> J., G., S.	<i>Pleurobranchius membranaceus</i> , <i>Mont.</i> J., G., H.
— <i>Johnstoni</i> , <i>Ald. & Hancock.</i> J., G.	<i>Eledone cirrhosa</i> , <i>Lam.</i> H.
<i>Eolis Cuvieri</i> , <i>Lam.</i> J., G.	<i>Ommastrephes sagittatus</i> , <i>Lam.</i> H.

CHORDATA.

<i>Balanoglossus sarniensis</i> , <i>Köhl.</i> H.	<i>Amphioxus lanceolatus</i> , <i>Yarr.</i> H.
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EXPLANATION OF PLATE XI.

- Fig. 1.* *Balanoglossus sarniensis*, drawn from three fragments forming a complete individual, preserved in spirits.
Fig. 2. *Æpophilus Bonnairei*, larva, × 22.
Fig. 3. One of the valves of the sheath of the female genital armature, × 38.
Fig. 4. Abdomen of the male seen from above, × 24.
Fig. 5. Leg of larva, × 28.
Fig. 6. Adult female, dorsal surface, × 12.
Fig. 7. Adult female, ventral surface, × 12.
Fig. 8. Rostrum of adult, × 30.
Fig. 9. Rostrum of larva, × 30.

XXXVI.—*Note on Pachymetopon and the Australian Species of Pimelepterus.* By Dr. A. GÜNTHER, Keeper of the Zoological Department, British Museum.

THE type specimen of *Pachymetopon grande* was transferred to the British Museum when the collection of the Zoological Society was broken up. Some time after the publication of the first description of the fish (*Günth. Fish.* i. p. 424) I ascertained from the MS. catalogue of the society that the specimen was originally obtained by the late Sir A. Smith at the Cape of Good Hope. No other individual has come under my notice since; but I have no doubt that naturalists residing at the Cape would have no difficulty in obtaining other examples. Fresh specimens preserved in spirits and skeletons of this fish are desiderata in every museum.

The fish described by Steindachner as *Pachymetopon Guentheri* (*Sitzungsber. Wien. Ak.* lx. 1870, p. 135) is also from the Cape of Good Hope, and probably not specifically distinct from *P. grande*. The characters in which this second species is considered to differ are the proportionate length of the head

* To be added to M. Duprey's lists.